

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed September 13, 2005. Reconsideration and allowance of the application and pending claims are respectfully requested.

I. Claim Objections

Claim 15 has been objected to for lack of antecedent basis for the term “first tunnel junction”. Applicant has canceled claim 15. In view of that cancellation, Applicant respectfully requests that the objection be withdrawn.

II. Claim Rejections - 35 U.S.C. §§ 102 and 103

Applicant's claims have been rejected in view of various references under both 35 U.S.C. § 102 and 35 U.S.C. § 103. However, as is indicated above, each of Applicant's previously-pending claims has been canceled. Accordingly, Applicant submits that the rejections are moot.

Replacing the canceled claims are new claims 17-33. Applicant respectfully submits that those new claims are novel and unobvious over the various references of record. Regarding independent claim 17, the references do not teach or suggest a memory element comprising a top conductor, a bottom conductor, an isolator element disposed between the top conductor and the bottom conductor, the isolator element being formed of a high-resistance conductor, and a non-conductive barrier layer disposed between the isolator element and the bottom conductor, the barrier layer being in contact with the

bottom conductor, wherein the bottom conductor and the barrier layer each comprise a non-uniform surface.

Regarding claim 24, the references of record do not teach or suggest a memory element comprising a top conductor, a bottom conductor, a silicon layer disposed between the top conductor and the bottom conductor, and a non-conductive barrier layer disposed between the silicon layer and the top conductor, the barrier layer being in contact with the silicon layer, wherein the silicon layer and the barrier layer each comprise a non-uniform surface.

Regarding claim 29, the references of record do not teach or suggest a memory element comprising a top conductor, a bottom conductor, an isolator element disposed between the top conductor and the bottom conductor, the isolator element being formed as a p-n diode junction, and a non-conductive barrier layer disposed between the isolator element and the bottom conductor, the barrier layer being in contact with the bottom conductor, wherein the bottom conductor and the barrier layer each comprise a non-uniform surface.

III. Canceled Claims

Claims 1-16 have been canceled from the application without prejudice, waiver, or disclaimer. Applicant reserves the right to present these canceled claims, or variants thereof, in continuing applications to be filed subsequently.

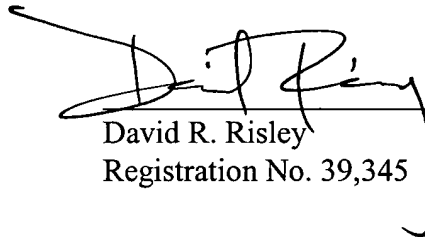
IV. New Claims

Claims 17-33 have been added into the application through this Response. Applicant respectfully submits that these new claims describe an invention novel and unobvious in view of the prior art of record and, therefore, respectfully requests that these claims be held to be allowable.

CONCLUSION

Applicant respectfully submits that Applicant's pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, Alexandria, Virginia 22313-1450, on

11-28-05
Mary M. Egan
Signature